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LLNL-TR-562972

# Foreign Travel Trip Report for LLNL Travel with DOE FES Funding

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July 2, 2012

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This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.



LLNL-MI- 625816

## Foreign Travel Trip Report for LLNL travel with DOE FES funding\*

Name, Position, Organization, Phone No:

**Eric Meier, LLNL (on assignment at PPPL), 609-243-2950**

Date of Trip Report:

**June 26, 2012**

Dates of Travel:

**May 19 – 27, 2012**

DOE Trip Number(s):

**41259-01**

DOE/HQ FES Sponsor:

**OFES**

Destinations (Installation, City and Country):

**Eurogress, Aachen, Germany**

Statement of Trip Purpose:

**Traveler presented a poster on Impurity Flow Measurements at DIII-D Using a Coherence Imaging Spectrometer and held scientific discussions with international scientific community.**

List of Persons Contacted:

**Wojtek Fundamenski, Mathias Groth, George Smith (Oxford Material Scientist), Max Fenstermacher, Brian LaBombard, John Roszell, K.S. Chung, Dennis Whyte**

List of Facilities Visited:

**Eurogress (conference venue)**

Abstract (i.e. major highlights benefits of the travel, results of meetings):

As a new researcher in this field, it was highly valuable for me to attend this bi-annual conference and be exposed to the wide variety of research in this field. The main motivation for attending was to present a poster that was prepared by Tobin Weber on Impurity Flow Measurements at DIII-D Using a Coherence Imaging Spectrometer. The poster resulted in extensive discussions with several non-LLNL scientists, including Brian LaBombard and Dennis Whyte, helping to disseminate knowledge about the coherence imaging spectrometry research carried out by LLNL at DIII-D.

Statement of Activities:

Attended each conference session. Some talk highlights are as follow.

- Tom Petrie is using SOLPS to model DIII-D. He found that adding a barrier on the upper shelf of the lower/outer divertor could help reduce peak heat flux because of retention of neutrals in the strike-point region.
- Talks from the first session focused on tungsten erosion. Tungsten melts at 4000 K. Have to keep all Tungsten surfaces below 4000 K. Can have a kind of runaway melting reaction if any W melts. This will ruin the plasma..
- A. Kukushkin says 1 mm SOL is unlikely in ITER, but if you have it, dissipation will keep the peak divertor heat flux below 10 MW/m<sup>2</sup>.
- In talk by Thierry Loarer, learned about JET. JET divertor setup is unusual (to me). Outer strike point is on floor of machine while upper sp is high on the inner wall.
- Stellerator vs. tokamak PSI issues... Suguru Masuzaki not sure which will have tougher divertor problems, and general PMI problems.
- Rozhansky talked about drifts in MAST edge modeling.
- Volker Phillips gave history of PSI.

Recommendations about Follow Up Activities:

I plan to read several of the papers related to the talks and posters.

Max Fenstermacher and I had some discussion about my possible participation in the snowflake divertor experiments at DIII-D (by doing modeling support, and possibly by direct participation at DIII-D).

Description of Any Security Related Concern Which Occurred During Trip:

None.

\* Travel approved by Defense Programs (DP) and Nonproliferation (NN) no longer requires a Trip Report. However, Actual Cost Reports and trip summary must still be submitted through FTS within 20 days of the return date.